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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,463	03/26/2004	Atushisa Nakashima	119260	7632

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EXAMINER

HSIEH, SHIH WEN

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 05/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.D

Office Action Summary

Application No.

10/809,463

Applicant(s)

NAKASHIMA, ATUSHISA

Examiner

Shih-wen Hsieh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-23 is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3-26-04; 8-01-05; 11-17-05; 9-13-05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. Four "X" references listed in European Search Report EP 04 25 1761, dated Oct. 10, 2005 by Christen, J have been considered, of these two are used in this office action.

Specification

3. The disclosure is objected to because of the following informalities:
Page 8, line 5, please change "12" into "21".

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 6, 11, 12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura (EP 0 525 988 A2, "X" reference from European Search Report listed above in the IDS portion in this office action).

In regard to:

Claim 1:

Nakamura teaches:

An image formation apparatus comprising;

a transport unit that transports a record medium (5, fig. 2), note: a transport unit is an essential part in an ink jet printer, this transport unit is used to convey a printing medium such as the one labeled "5" in fig. 2 of this European reference from a printing starting position to facing the print head receiving ink droplets based on the printing signal, forming a desired image, and then exits to a receiving tray, although the transport unit is not explicitly indicated in Nakamura's invention, it is clearly understood by an one of ordinary skill in the art that the transport unit is somewhere in the adjacent of the printing medium "5", and also, Nakamura's invention is emphasized in the two cleaning events, therefore, the must-have feature of the transport unit in an ink jet printer is not necessarily to be expressed out);

a print head (6, fig. 2) having a plurality of nozzles that eject ink, thereby forming an image on the record medium:

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a first recovery ejection unit (cleaning 1, fig. 1) that performs recovery ejection of nozzles used for forming an image on the record medium; and

a second recovery ejection unit (cleaning 2, fig. 1) that performs recovery ejection of at least one of the plurality of nozzles in accordance with a time elapsed from a previous recovery ejection, for these two portions, please refer to col. 7, line 8 to col. 9, line 48. The time elapse is indicated as step S6 (also see col. 9, lines 13-15), also see col. 13, lines 39-45.

Claim 2:

Nakamura further teaches:

wherein the second recovery ejection unit performs the recovery ejection in a larger ejection amount than the ejection amount of the first recovery ejection unit, refer to col. 6, lines 39-49 and col. 8, line 58 to col. 9, line 5.

Claim 6:

Nakamura further teaches:

further comprising: a time count unit that count a predetermined time; wherein the second recovery ejection unit performs the recovery ejection each time the predetermined time counted by the time count unit has elapsed, refer to fig. 1, steps S6 to cleaning 2.

Claims 11, 12 and 14:

A recovery ejection method in an image formation apparatus including a transport unit for transporting a record medium and a print head having a plurality of nozzles for ejecting ink for forming an image, the method comprising;

performing a first recovery ejection of nozzles used for forming an image on the record medium; and

performing a second recovery ejection of at least one of the plurality of nozzles in accordance with a time elapsed from a previous recovery ejection (claim 11);

The recovery ejection method claimed in claim 11, wherein the step of performing second recovery ejection includes performing recovery ejection in a larger ejection amount than the ejection amount of the first recovery ejection (claim 12); and

The recovery ejection method as claimed in claim 11, wherein the step of second recovery ejection includes ejecting ink each time a predetermined time has elapsed (claim 14).

Rejection:

These three method claims correspond to apparatus claims 1, 2 and 6 respectively, and the steps in these method claims are deemed to be made inherent by the functions of the structure in the combination discussed above.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 3-5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of Kitahara et al. (US Pat. No. 6,672,705 corresponding to 2002/0018097 in the European Search Report).

In regard to:

Claim 3:

The device of Nakamura DIFFERS from claim 3 in that it does not teach:

wherein the transport unit includes a transport belt that transports the record medium; and

the second recovery ejection unit performs recovery ejection of nozzles at a predetermined position on the transport belt.

As discussed above for claim 1, Nakamura does not specifically teach the structure of the transport unit, and a revolving belt for carrying a printing medium passing through a print head receiving ink droplet from the head to form an image on the medium is one type of transport unit generally used in an ink jet printer for such purpose. On this ground, Kitahara et al. teach in their fig. 3 a paper transportation system (2, fig. 3 corresponds to the transport unit in the instant application) in the form of a belt (18) for conveying a printing medium (28, fig. 1) passing through print heads (3). The belt has an opening 18c, corresponds to the predetermined position where the second recovery ejection unit performs recovery ejection of nozzles, refer to col. 6, lines 22-25 and lines 60-65; and col. 9, lines 45-59.

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the device of Nakamura to include a belt

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as the transport unit, and the belt has an opening (18c) for receiving ejected ink from the head in a nozzles recovery operation as taught by Kitahara et al. for the purpose of carrying paper and performing nozzle recovery by ejecting ink toward a predetermined area on the belt to bring back normal functioning of the nozzles.

Claim 4:

The device of Nakamura as modified in view of Kitahara et al. DIFFERS from claim 4 in that it does not teach:

wherein the transport belt has a recess that receives ink ejected to the belt at the predetermined position.

Kitahara et al. further teach an opening (18c) in the belt (18) for receiving ejected ink from the head (3), refer to col. 9, lines 45-59. Note: a recess is actually an opening formed on a plane, this recessed portion is below the plane.

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use this opening as further taught by Kitahara et al. for the purpose of receiving ejected ink during nozzle recovery operation.

Claim 5:

The device of Nakamura DIFFERS from claim 5 in that it does not teach:

a cleaning unit that cleans ink ejected by the second recovery ejection unit.

Kitahara et al. further teach:

a claw (27, fig. 2) for cleaning ink ejected by the second recovery ejection unit, refer to col. 6, lines 55-59.

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Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the device of Nakumura to include the claw as further taught by Kitahara et al. for the purpose of cleaning the belt.

Claim 13:

The recovery election method as claimed in claim 11, wherein the step of performing second recovery ejection includes performing recovery ejection of nozzles at a predetermined position on a transport belt included in the transport unit.

Rejection:

This method claim corresponds to apparatus claim 3, and the step in this method claim is deemed to be made obvious by the functions of the structure in the combination discussed above.

8. Claims 7-10 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of Fujii et al. (US Pat. No. 5,572,242).

In regard to:

Claims 7-10:

The device of Nakamura DIFFERS from claims 7-10 in that it does not teach:
a temperature detection unit that detects an ambient temperature; wherein the second recovery ejection unit changes the time in response to the temperature detected by the temperature detection unit (claim 7);

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a humidity detection unit that detects an ambient humidity; wherein the second recovery ejection unit changes the time in response to the humidity detected by the humidity detection unit (claim 8);

a temperature detection unit that detects an ambient temperature; wherein the second recovery ejection unit changes ejection amount of ink in response to the temperature detected by the temperature detection unit (claim 9); and

a humidity detection unit that detects an ambient humidity; wherein the second recovery election unit changes ejection amount of ink in response to the humidity detected by the humidity detection unit claim (10).

Fujii et al. teach in their fig. 17 a graph showing a relationship among temperature, humidity of the environment (where the ink jet printer is used), the discharge amount in the nozzle recovery operation and the time that the printer is left unused, and in the instant application case, this unused time period is the time in between the first and the second recoveries, refer to col. 5, line 10 to col. 6, line 26.

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the device of Nakamura to include the temperature and humidity detection of the environment as taught by Fujii et al. for the purpose of varying the waiting time period in between the two recoveries in the instant application and ink discharging amount so as not to consume more ink according to the environmental condition.

Claims 15-18:

The recovery ejection method as claimed in claim 11, wherein the step of second recovery ejection includes changing the time in response to an ambient temperature (claim 15);

The recovery ejection method as claimed in claim 11, wherein the step of second recovery ejection includes changing the time in response to an ambient humidity (claim 16);

The recovery ejection method as claimed claim 11, wherein the step of second recovery ejection includes changing ejection amount of ink in response to an ambient Temperature (claim 17); and

The recovery ejection method as claimed claim 11, wherein the step of second recovery ejection includes changing ejection amount of ink in response to an ambient humidity (claim 18).

Rejection:

These four method claims correspond to apparatus claims 7-10 respectively, and the steps in these method claims are deemed to be made obvious by the functions of the structure in the combination discussed above.

Allowable Subject Matter

9. Claims 19-23 are allowed.

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10. The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claims 19-23 is the inclusion of the limitation of the maintenance unit includes a cleaning portion that cleans the recess when the maintenance unit moves between the first position and the second position. It is this limitation found in each of the claims, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-wen Hsieh whose telephone number is 571-272-2256. The examiner can normally be reached on 7:30AM -5:00PM.

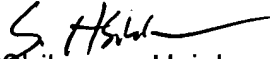
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, S D. Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

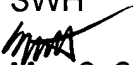
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SHIH-WEN HSIEH
PRIMARY EXAMINER


Shih-wen Hsieh
Primary Examiner
Art Unit 2861

SWH


May 2, 2006